

Title: Transportation pallet apparatus for transporting roofing shingles to a ridge of a roof.

Background of the invention.

5 **Field of the invention.**

The present invention relates to a transportation pallet apparatus for transporting roofing shingles to a ridge of a roof. More specifically, the present invention relates to a transportation pallet apparatus for transporting roofing shingles to a ridge of a roof so that transportation of a loaded
10 platform from a vehicle to the ridge of the roof is permitted even in bad weather conditions.

Background information.

In the roofing industry, bundles of roofing shingles are loaded onto wooden pallets by the
15 manufacturers of such shingles. A loaded pallet is typically 36" x 48" and weighs up to 4,000 lbs. The pallets are then transported by truck from a warehouse to the building site. At the building site, the loaded pallets are then lifted by a conveyor, crane or fork lift to the roof. Usually, the loaded pallet is supported by the crane or the like above the ridge of the roof and the shingles are unloaded
on either side of the pallet by an unloading crew on the roof who stack the shingles on the roof on
20 both sides of the ridge. On the average roof of 3,000 square foot, a three man crew under ideal conditions would take an hour which would represent three man hours to unload and stack the shingles. The time taken to undertake this operation would be doubled for roof pitches of 10/12 or

greater. Also, the average time required on site for the crane and operator would be 1 hour for a roof less than 10/12 pitch and at least twice that amount of time for a pitch greater than 10/12.

The aforementioned unloading operation is time consuming and labor intensive. Moreover,
5 when ice or snow is present on the roof, it would not be safe to have an unloading crew on the roof. Consequently, under such unfavorable weather conditions, the transportation of such shingles from the warehouse or distribution center must be delayed until the return of more favorable weather. Therefore, the sale and distribution of shingles to roofing sites tends to be intermittent and unpredictable. Accordingly, in order to maintain a continuous and economical production of roofing
10 shingles, relatively large warehouses must be built in order to accommodate the intermittent transportation requirements necessitated by the changing weather conditions.

The present invention will have a far reaching impact on both the shingle manufacturing industry and the roofing industry by the provision of a new arrangement that permits the unloading
15 of roofing shingles that is accomplished safely and reliably regardless of the prevailing weather conditions.

More specifically, the present invention enables a driver to transport special reusable pallets loaded with shingles from the distribution point to the building site. The driver or operator from the
20 transportation vehicle then hoists the loaded pallet to above the roof ridge. A viewing screen is connected to a video camera secured to a lifting device for lifting the pallet so that the loaded pallet can be safely lowered onto the roof above the ridge without the need of any unloading crew on the

roof and regardless of the presence of ice, snow or rain on the roof.

Also, the arrangement according to the present invention facilitates the transportation of other roofing materials such as nails, paper, asphalt etc. to the roof ridge.

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Furthermore, the pallet apparatus according to the present invention could be lifted by a lifting device without a camera whereby the ridge location would be monitored by a spotter on the roof who could also manually detach lifting straps from the pallet.

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Additionally, the pallet apparatus according to the present invention provides a safer means for transporting shingle and other roofing materials to the ridge of a roof and particularly to relatively steep roofs in bad weather.

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Therefore, a primary feature of the present invention is the provision of a transportation pallet apparatus for transporting roofing shingles to a ridge of a roof that overcomes the problems associated with the prior art arrangements.

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Another feature of the present invention is the provision of a transportation pallet apparatus for transporting roofing shingles to a ridge of a roof regardless of weather conditions.

A further feature of the present invention is the provision of transportation pallet apparatus for transporting roofing shingles to a ridge of a roof that enables a single operator to deliver the

shingles.

Yet another feature of the present invention is the provision of transportation pallet apparatus for safely transporting roofing shingles to a ridge of a roof.

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A still further feature of the present invention is the provision of a transportation pallet apparatus that would lessen potential damage to the roof.

Other features and advantages of the present invention will be readily apparent to those skilled in the art by a consideration of the detailed description of a preferred embodiment of the present invention contained herein.

Summary of the invention.

15 The present invention relates to a transportation pallet apparatus for transporting roofing shingles to a ridge of a roof. The apparatus includes a rectangular platform having a first and a second side and a first and a second edge. The platform defines a surface for supporting the shingles. The second side is disposed parallel and spaced relative to the first side and the second edge is disposed parallel and spaced relative to the first edge. A first stabilizing leg extends from the platform, the first leg having a first and a second end. The first end of the first leg is secured to the platform between the first and the second sides thereof. A second stabilizing leg also extends from the platform, the second leg having a first and a second extremity. The first extremity of the second

leg is secured to the platform between the first end of the first leg and the second side of the platform such that when the platform has been loaded with the shingles, the pallet apparatus is transported to the ridge of the roof with the first and second legs resting and being supported by the roof with the legs being disposed on opposite sides of the ridge.

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In a more specific embodiment of the present invention, the platform includes a plurality of elongate bars. Each bar of the plurality of bars extends from the first to the second edge with each bar being disposed parallel and spaced relative to an adjacent bar.

10 The platform further includes a first side rail which is disposed adjacent to the first side of the platform. A second side rail is disposed adjacent to the second side of the platform, the second side rail extending parallel and spaced relative to the first side rail. Also, a first edge rail is disposed adjacent to the first edge of the platform and a second edge rail is disposed adjacent to the second edge of the platform. The second edge rail extends parallel and spaced relative to the first edge rail
15 and the plurality of bars are secured to the rails so that the bars are reinforced by the rails.

Moreover, the rails and the bars are fabricated from steel.

Also, the first leg extends angularly away from the platform such that when the first leg is
20 supported by the roof, the platform is disposed horizontally above the ridge for supporting the shingles thereon. The second leg extend angularly away from the platform and the first leg such that when the second leg is supported by the roof on the opposite side of the roof relative to the ridge,

the platform is disposed horizontally above the ridge for supporting the shingles thereon.

Moreover, if the angle of the roof is different on opposite sides of the peak, the platform will not be disposed horizontally, but will rest on an angle less severe than the pitch of the roof. In this case the lift operator can adjust the location to minimize the angle.

The first leg further includes a strengthening first fillet which is disposed adjacent to the first end of the first leg. The first fillet extends from the first end of the first leg to the platform. More specifically, the first fillet is rigidly secured to the first leg and the platform for strengthening the securement of the first leg to the platform.

Additionally, the second leg further includes a strengthening second fillet which is disposed adjacent to the first extremity of the second leg. The second fillet extends from the first extremity of the second leg to the platform. The second fillet is rigidly secured to the second leg and the platform for strengthening the securement of the second leg to the platform.

Furthermore, the first leg further includes a first foot which is secured to the second end of the first leg such that when the platform with the shingles disposed thereon is disposed above the ridge, the first foot engages and is supported by the roof.

A second foot is secured to the second extremity of the second leg such that when the platform with the shingles disposed thereon is disposed above the ridge, the second foot engages

and is supported by the roof on the opposite side of the ridge relative to the first foot.

The first foot has an inner and an outer end, the first foot being secured to the second end of the first leg between the inner and the outer ends of the first foot.

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Also, the inner end of the first foot defines a curved portion which cooperates with the roof when the platform is disposed above the ridge for preventing damage to the roof.

Additionally, the second foot has an inner and an outer extremity, the second foot being
10 secured to the second extremity of the second leg between the inner and the outer extremities of the second foot.

Moreover, the inner extremity of the second foot defines a curved member which cooperates with the roof when the platform is disposed above the ridge for preventing damage to the roof.

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In a preferred embodiment of the present invention, the apparatus further includes a releasable hoist for lifting the platform loaded with the shingles to the ridge of the roof and for lowering the loaded platform onto the ridge and thereafter releasing the hoist from the platform.

20 Also, the apparatus further includes a transportation vehicle for transporting the loaded platform to a vicinity of the roof. The transportation vehicle may include a crane or lift with forks. The arrangement is such that an operator is permitted to operate the hoist for hoisting the loaded

platform from the vehicle to the ridge of the roof without the need for further personnel on the roof so that the shingles can be delivered to the roof even during inclement weather conditions. However, if a camera is not used, a spotter would be necessary to direct the operator. Also, if an automatic clamping device is not used, a manual method such as straps would be needed to be disconnected
5 by a person on the roof.

The present invention also includes a video camera which is secured to the platform for viewing a disposition of the platform and legs thereof relative to the ridge and the roof.

10 A viewing screen is remotely connected to the camera for permitting the operator to accurately assess from the transportation vehicle, the disposition and orientation of the platform relative to the ridge and the roof so that safe transportation and positioning of the loaded pallet above the ridge is achieved even in bad weather conditions without any need for further assistance from an unloading crew.

15 Many modifications and variations of the present invention will be readily apparent to those skilled in the art by a consideration of the detailed description contained hereinafter taken in conjunction with the annexed drawings which show a preferred embodiment of the present invention. However, such modifications and variations fall within the spirit and scope of the present
20 invention as defined by the appended claims.

Brief description of the drawings.

Fig. 1 is a perspective view of a transportation pallet apparatus for transporting roofing shingles to a ridge of a roof;

Fig. 2 is an enlarged side elevational view of the pallet apparatus shown in Fig. 1;

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Fig. 3 is a top plan view of the pallet apparatus shown in Fig. 2; and

Fig. 4 is a side view of the pallet apparatus shown in Fig. 1 but including a hoist and transportation vehicle according to the present invention.

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Similar reference characters refer to similar parts throughout the various views of the drawings.

Detailed description of the drawings.

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Fig. 1 is a perspective view of a transportation pallet apparatus generally designated 10 according to the present invention for transporting roofing shingles 12, 13 to a ridge 14 of a roof 16.

As shown in Fig. 1, the apparatus 10 includes a rectangular platform generally designated 18 having a first and a second side 20 and 22 respectively and a first and a second edge 24 and 26 respectively.

20 The platform 18 defines a surface 28 for supporting the shingles 12, 13. The second side 22 is disposed parallel and spaced relative to the first side 20 and the second edge 26 is disposed parallel and spaced relative to the first edge 24. A first stabilizing leg generally designated 30 extends from

the platform 18, the first leg 30 having a first and a second end 32 and 34 respectively. The first end 32 of the first leg 30 is secured to the platform 18 between the first and the second sides 20 and 22 respectively.

5 Fig. 2 is an enlarged side elevational view of the pallet apparatus shown in Fig. 1. As shown in Fig. 2, the apparatus 10 includes a second stabilizing leg generally designated 36 which also extends from the platform 18, the second leg 36 having a first and a second extremity 38 and 40 respectively. The first extremity 38 of the second leg 36 is secured to the platform 18 between the first end 32 of the first leg 30 and the second side 22 of the platform 18 such that when the platform
10 18 has been loaded with the shingles 12 and 13, the pallet apparatus 10 is transported to the ridge 14 of the roof 16 with the first and second legs 30 and 36 respectively resting and being supported by the roof 16 with the legs 30 and 36 respectively being disposed on opposite sides 42 and 44 of the ridge 14.

15 Fig. 3 is a top plan view of the pallet apparatus 10 shown in Fig. 2. As shown in Fig. 2, the platform 18 includes a plurality of elongate bars 46, 47 and 48. Each bar such as 46 of the plurality of bars 46-48 extends from the first edge 24 to the second edge 26 with each bar such as 46 being disposed parallel and spaced relative to an adjacent bar 47.

20 The platform 18 further includes a first side rail 50 which is disposed adjacent to the first side 20 of the platform 18. A second side rail 52 is disposed adjacent to the second side 22 of the platform 18, the second side rail 52 extending parallel and spaced relative to the first side rail 50.

Also, a first edge rail 54 is disposed adjacent to the first edge 24 of the platform 18 and a second edge rail 56 is disposed adjacent to the second edge 26 of the platform 18. The second edge rail 56 extends parallel and spaced relative to the first edge rail 54 and the plurality of bars 46-48 are secured to the rails 50, 52, 54 and 56 so that the bars 46-48 are reinforced by the rails 50, 52, 54 and 56.

Moreover, the rails 50, 52, 54 and 56 and the bars 46-48 are fabricated from steel. However, the bars 46-48 may be produced from pultruded fiberglass and a combination of aluminum with plastic.

Also, as shown in Fig. 2, the first leg 30 extends angularly away from the platform 18 such that when the first leg 30 is supported by the roof 16, the platform 18 is disposed horizontally above the ridge 14 for supporting the shingles 12, 13 thereon. The second leg 36 extend angularly away from the platform 18 and the first leg 30 such that when the second leg 36 is supported by the roof 16 on the opposite side 44 of the roof 16 relative to the ridge 14, the platform 18 is disposed horizontally above the ridge 14 for supporting the shingles 12, 13 thereon.

The first leg 30 further includes a strengthening first fillet 58 which is disposed adjacent to the first end 32 of the first leg 30. The first fillet 58 extends from the first end 32 of the first leg 30 to the platform 18. More specifically, the first fillet 58 is rigidly secured to the first leg 30 and the platform 18 for strengthening the securement of the first leg 30 to the platform 18.

Additionally, the second leg 36 further includes a strengthening second fillet 60 which is disposed adjacent to the first extremity 38 of the second leg 36. The second fillet 60 extends from the first extremity 38 of the second leg 36 to the platform 18. The second fillet 60 is rigidly secured to the second leg 36 and the platform 18 for strengthening the securement of the second leg 36 to the platform 18.

Furthermore, the first leg 30 further includes a first foot 62 which is secured to the second end 34 of the first leg 30 such that when the platform 18 with the shingles 12, 13 disposed thereon is disposed above the ridge 14, the first foot 62 engages and is supported by the roof 16.

A second foot 64 is secured to the second extremity 40 of the second leg 36 such that when the platform 18 with the shingles 12, 13 disposed thereon is disposed above the ridge 14, the second foot 64 engages and is supported by the roof 16 on the opposite side 44 of the ridge 14 relative to the first foot 62.

The first foot 62 has an inner and an outer end 66 and 68 respectively, the first foot 62 being secured to the second end 34 of the first leg 30 between the inner and the outer ends 66 and 68 respectively of the first foot 62.

Also, the inner end 66 of the first foot 62 defines a curved portion 70 which cooperates with the roof 16 when the platform 18 is disposed above the ridge 14 for preventing damage to the roof 16.

Additionally, the second foot 64 has an inner and an outer extremity 72 and 74 respectively, the second foot 64 being secured to the second extremity 40 of the second leg 36 between the inner and the outer extremities 72 and 74 respectively of the second foot 64.

5 Moreover, the inner extremity 72 of the second foot 64 defines a curved member 76 which cooperates with the roof 16 when the platform 18 is disposed above the ridge 14 for preventing damage to the roof 16.

As shown in Fig. 3, the apparatus 10 also includes a third and fourth leg 75 and 77
10 respectively which are similar to the legs 30 and 36 respectively. The legs 75 and 77 are for further stabilizing and supporting the platform 18 on the sides 42 and 44 respectively of the roof 16.

Fig. 4 is a side view of the pallet apparatus shown in Fig. 1 but includes a hoist and transportation vehicle according to the present invention. As shown in Fig. 4, the apparatus 10
15 includes a releasable hoist 78 for lifting the platform 18 loaded with the shingles 12, 13 to the ridge 14 of the roof 16 and for lowering the loaded platform 18 above the ridge 14 and thereafter releasing the hoist 78 from the platform 18.

Also, the apparatus 10 further includes a transportation vehicle 80 for transporting the loaded
20 platform 18 to a vicinity of the roof 16 such that an operator is permitted to operate the hoist 78 for hoisting the loaded platform 18 from the vehicle 80 to the ridge 14 of the roof 16 without the need for further personnel on the roof 16 so that the shingles 12, 13 can be delivered to the roof 16 even

during inclement weather conditions.

The present invention also includes a video camera 82 which is secured to the platform 18 for viewing a disposition of the platform 18 and legs 30 and 36 thereof relative to the ridge 14 and
5 the roof 16.

A viewing screen 84 is remotely connected to the camera 82 for permitting the operator to accurately assess from the transportation vehicle 80, the disposition and orientation of the platform 18 relative to the ridge 14 and the roof 16 so that safe transportation and positioning of the loaded
10 pallet or platform 18 above the ridge 14 is achieved even in bad weather conditions without any need for further assistance from an unloading crew.

The reusable pallet according to the present invention may be made from plastics, aluminum or materials other than steel. Also, the crane truck may be a relatively lightweight unit that can lift
15 two tons.

In operation of the pallet apparatus 10 according to the present invention, the operator drives to the warehouse or distribution center where the shingles are loaded onto pallet platforms 18 of the present invention. At the building site, the operator connects a loaded pallet 18 to the hoist 78. The
20 loaded platform 18 is then raised by the hoist 78 to above the ridge 14 of the roof 16 using the camera 82 and associated monitor 84 for maneuvering the loaded pallet and aligning the same so that the legs 30 and 36 are disposed on either side of the ridge 14 prior to lowering the loaded pallet for

support thereof by the sides 42 and 44 of the roof 16. When the loaded pallet has been lowered onto the roof 16, the hoist is remotely disconnected from the platform 18 so that a further loaded pallet may be hoisted to the ridge 14.

5 The present invention enables an operator to safely unload shingles onto a roof regardless of weather conditions and without the need of an unloading crew.

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